NETTS Project/Demonstration Summary

Title: Infracal TOG/TPH Analyzer NCBC-54-00

Lead PI/Affiliation: Wilks Enterprise Inc.

Co-PI's/Affiliations: EPA NERL,
TestraTech

Date/Duration:
Initiated – 12/99
Completed - 9/02

Introduction: This demonstration was conducted as part of the EPA Superfund Innovative Technology Evaluation (SITE) Monitoring and Measurement Technology (MMT) Program at Port Hueneme in June 2000. The purpose of the demonstration is to evaluate innovative field measurement devices for TPH in soil in order to determine whether they are more efficient or cost-effective than conventional off-site laboratory measurement methods. Although the off-site laboratory measurement methods currently being used meet most TPH measurement requirements, new field measurement devices may be faster and easier to operate and less expensive.

Abstract: These innovative technologies are demonstrated under field conditions, and the results are compiled, evaluated, published, and disseminated by the EPA ORD. Field analysis was conducted at the NETTS, Port Hueneme CA. With soil core, samples taken at Port Hueneme, Kelley AFB, and a Petroleum Site in Indiana. The Infracal TOG/TPH analyzer developed by Wilks is based on infrared analysis. The device is identified according to the sample stage used. The device can be operated as either Model CHV or Model HATR-T simply by switching the sample stages. Models CHV and HATR-T include a, single beam, fixed wavelength, NDIR filter-based spectrophotometer with a dual detector system. In Model CHV, a pulsed beam of infrared radiation from a tungsten lamp is transmitted through a quartz cuvette that contains a sample extract. The radiation that has passed through the extract enters a dual detector system containing filters that isolate a reference wavelength (2,500nm) and an analytical wavelength (3,400nm). The reference wavelength stabilized spectrophotometer response and automatically correct spectrophotmeter reading for fluctuation in ambient temperature and relative humidity. Model HATR-T is based on an evaporation technique and does not require a cuvette to contain the sample extract. Instead, the extract is placed directly on the sample stage. A pulsed beam of infrared radiation from a tungsten lamp is used to irradiate the sample stage, and a dual detector system is used to measure residual hydrocarbons after volatile organics evaporate from the extract.

Results/Conclusions: New Start

Publications: